We claim:

1. An immunomodulating composition for use in treating or preventing an autoimmune disorder comprising a nucleic acid construct encoding at least one epitope from a self-antigen in a pharmaceutically acceptable carrier.

2. The composition of claim 1, wherein the autoimmune disorder is selected from the group consisting of multiple sclerosis (MS), rheumatoid arthritis, lupus erythrematosis, type I diabetes, scleroderma, myastenia gravis and ulcerative colitis.

3. The composition of claim 1, wherein the epitope is derived from insulin B-chain.

4. The composition of claim 1, wherein the epitope is derived from myelin basic protein.

5. The composition of claim 1, wherein the construct includes a plasmid backbone.

6. The composition of claim 1, further comprising a nucleic acid sequence encoding a biological response modifier.

7. The composition of claim 6, wherein the biological response modifier is selected from the group consisting of a cytokine, a chemokine, an interferon and an interleukin.

8. The composition of claim 6, wherein the biological response modifier is selected from the group consisting of IL-l(alpha or beta), IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, GM-CSF, M-CSF, G-CSF, LIF, LT, TGF-beta., gamma-IFN (or alpha. or .beta.-IFN), TNF-.alpha., BCGF, CD2, or ICAM.

9. The composition of claim 1, wherein the nucleic acid construct further comprises a regulatory element.

10. The composition of claim 9, wherein the regulatory element is a promoter selected from the group consisting of Mouse Mammary Tumor Virus (MMTV) promoter, Human Immunodeficiency Virus Long Terminal Repeat (HIV LTR) promoter, Moloney virus, ALV, Cytomegalovirus (CMV) promoter, human Actin, human Myosin, RSV, human Hemoglobin, human muscle creatine and EBV.

11. A method for treating or preventing autoimmune disorder in a subject having or at risk of having the disorder comprising administering to the subject, an immunomodulatory effective amount of a nucleic acid construct encoding at least one epitope from a self-antigen in a pharmaceutically acceptable carrier, wherein expression of the epitope provides a regulatory immune response, thereby treating or preventing the disorder.

12. The method of claim 11, wherein the subject is a human.

13. The method of claim 11, wherein the autoimmune disorder is selected from the group consisting of multiple sclerosis (MS), rheumatoid arthritis, lupus erythrematosis, type I diabetes, scleroderma, myastenia gravis and ulcerative colitis.

14. The method of claim 11, wherein the epitope is derived from insulin B-chain.

15. The method of claim 11, wherein the epitope is derived from myelin basic protein.

16. The method of claim 11, wherein the construct includes a plasmid backbone.

17. The method of claim 11, further comprising a nucleic acid sequence encoding a biological response modifier.

18. The method of claim 17, wherein the biological response modifier is selected from the group consisting of a cytokine, a chemokine, an interferon and an interleukin.

19. The method of claim 17, wherein the biological response modifier is selected from the group consisting of IL-l(alpha or beta), IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, GM-CSF, M-CSF, G-CSF, LIF, LT, TGF-beta., gamma-IFN (or alpha. or .beta.-IFN), TNF-.alpha., BCGF, CD2, or ICAM.

20. The method of claim 11, wherein the nucleic acid construct further comprises a regulatory element.

21. The method of claim 20, wherein the regulatory element is a promoter selected from the group consisting of Mouse Mammary Tumor Virus (MMTV) promoter, Human Immunodeficiency Virus Long Terminal Repeat (HIV LTR) promoter, Moloney virus, ALV, Cytomegalovirus (CMV) promoter, human Actin, human Myosin, RSV, human Hemoglobin, human muscle creatine and EBV.

22. A method for inducing a regulatory immune response in a subject having or at risk of having an autoimmune disorder comprising administering to the subject, an immunomodulatory effective amount of a nucleic acid construct encoding at least one epitope from a self-antigen in a pharmaceutically acceptable carrier, wherein expression of the epitope provides a regulatory immune response.

23. The method of claim 22, wherein the autoimmune disorder is selected from the group consisting of multiple sclerosis (MS), rheumatoid arthritis, lupus erythrematosis, type I diabetes, scleroderma, myastenia gravis and ulcerative colitis.

24. The method of claim 22, wherein the epitope is derived from insulin B-chain.

25. The method of claim 22, wherein the epitope is derived from myelin basic protein.

26. The method of claim 22, wherein the construct includes a plasmid backbone.

27. The method of claim 22, further comprising a nucleic acid sequence encoding a biological response modifier.

28. The method of claim 27, wherein the biological response modifier is selected from the group consisting of a cytokine, a chemokine, an interferon and an interleukin.

Sub a6

29. The method of claim 22, wherein the biological response modifier is selected from the group consisting of IL-l(alpha or beta), IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, GM-CSF, M-CSF, G-CSF, LIF, LT, TGF-beta., gamma-IFN (or alpha. or .beta.-IFN), TNF-.alpha., BCGF, CD2, or ICAM.

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30. The method of claim 22, wherein the nucleic acid construct further comprises a regulatory element.

31. The method of claim 30, wherein the regulatory element is a promoter selected from the group consisting of Mouse Mammary Tumor Virus (MMTV) promoter, Human Immunodeficiency Virus Long Terminal Repeat (HIV LTR) promoter, Moloney virus, ALV, Cytomegalovirus (CMV) promoter, human Actin, human Myosin, RSV, human Hemoglobin, human muscle creatine and EBV.

add a7

add B12

add C10

add D1

add F5